

New Hampshire Lyme Disease Bulletin: 2006

Lyme disease is caused by a bacterium, *Borrelia burgdorferi*. It was first discovered in the U.S. in the late 1970s when a cluster of children in and around Lyme, Connecticut developed arthritis-like symptoms. The bacteria are transmitted to humans by the bite of infected deer ticks (scientific name: *Ixodes scapularis*) and cause more than 16,000 infections in the U.S. each year.

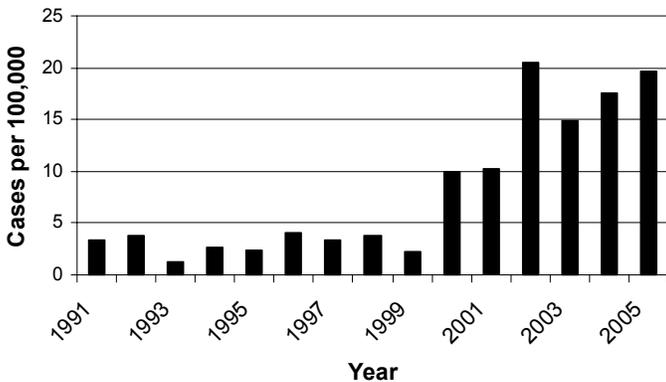
Symptoms

Early symptoms of Lyme disease typically occur 3-32 days after the bite of an infected tick. The illness often, but not always, starts as a large circular reddish expanding rash (erythema migrans) around or near the site of the tick bite. Multiple rash sites may occur. During or just prior to the rash stage, other symptoms such as fever, headache, fatigue, stiff neck and muscle and/or joint pain may be present. These symptoms may last for several weeks. If left untreated, complications such as meningitis and heart abnormalities may occur within weeks to months after the rash onset, and other body systems may be affected. Intermittent episodes of swelling and joint pain may recur over months to years.

New Hampshire Incidence⁺

A total of 1,507 cases of Lyme disease were reported in NH residents between 1991 and 2005. Over the 15-year period, the annual incidence increased from 3.4 to 19.6 cases per 100,000

Figure 1: Annual Incidence of Reported Cases of Lyme Disease, New Hampshire, 1991-2005⁺



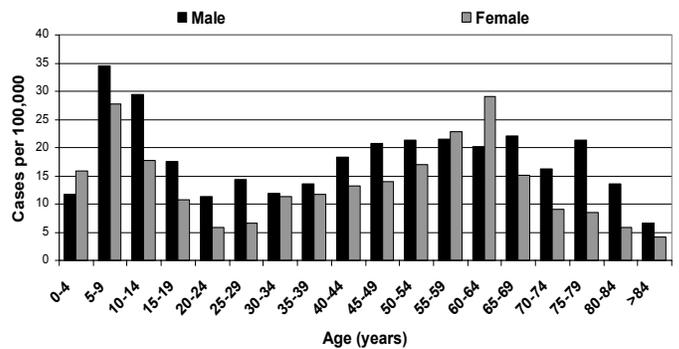
persons (Figure 1). Several New England states have observed a similar increase in Lyme disease

during recent years. Between 2002 and 2005, Rockingham and Strafford Counties reported the highest average annual age-adjusted incidence with 35.0 and 37.6 cases per 100,000 persons, respectively.

Risk Factors

Increased exposure to deer ticks results in an increased risk of Lyme disease. People who spend time in wooded or grassy areas are at greater risk of Lyme disease. People who work or play in their

Figure 2: Average Annual Incidence of Reported Cases of Lyme Disease by Age Group and Gender, New Hampshire, 2001-2005⁺

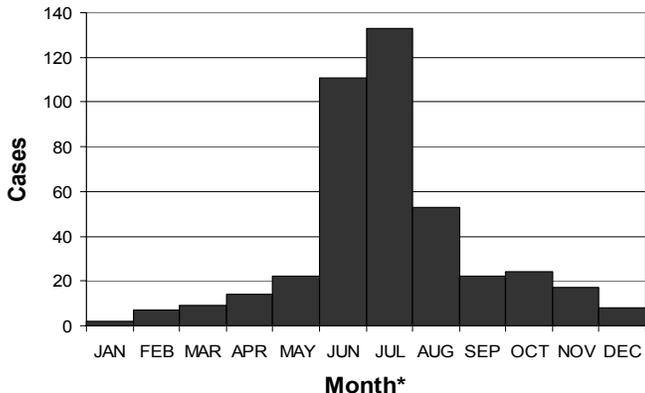


yard, participate in recreational activities away from home, such as hiking, camping, fishing, and hunting, or engage in outdoor occupations, such as landscaping, brush clearing, forestry, and wildlife and parks management, are at risk of contracting Lyme disease. Although persons of all ages and gender are susceptible to Lyme disease, it is most common among children aged 5-14 (especially boys) and persons aged 40 or older (Figure 2).

Tick Activity

Most humans are infected through the bite of immature ticks called nymphs. Nymphs are about the size of a pinhead (<2 mm) and difficult to see. They are most active in May, June, and July, which

Figure 3: Reported Cases of Lyme Disease by Month of Illness Onset, New Hampshire, 2002-2003⁺



* Symptoms typically begin 3-32 days after the bite of an infected tick.

correspond with peak human Lyme disease cases (Figure 3). Adult ticks can also transmit Lyme disease bacteria, but they are much larger (2-3 mm) and may be more likely to be discovered and removed before they have had time to transmit the bacteria. Adult *Ixodes* ticks are most active from mid-September to mid-November.

Prevention Methods

Lyme disease is preventable. The following guidelines will aid in preventing tick bites and the transmission of Lyme disease.

- Avoid tick-infested areas. If in tick-infested areas, walk in the center of trails to avoid contact with overgrown grass, brush, and leaf litter at trail edges.
- Use insect repellent. Apply insect repellent containing DEET, Picaridin, or Oil of Lemon Eucalyptus on clothes and exposed skin. Clothes (especially pants, socks, and shoes) may be treated with permethrin, which kills ticks on contact. Permethrin can

also be used on tents and some camping gear. Do not use permethrin directly on skin. Always follow the manufacturer's instructions when applying any repellents.

- Wear protective clothing. Long pants and long sleeves help keep ticks off skin. Light-colored clothing will help make ticks easier to see. Pant legs may be tucked into socks or boots and shirt into pants to keep ticks on the outside of clothing. Tape the area where pants and socks meet so that ticks cannot crawl under clothing. After being outdoors, wash and dry clothing at a high temperature to kill any ticks that may remain on clothing.
- Perform tick checks after being outdoors. Ticks must be attached for greater than 24 hours before they can transmit the bacteria that cause Lyme disease. Early removal of ticks can reduce the risk of infection. Inspect all body surfaces carefully, and remove attached ticks with tweezers. Grasp the tick firmly and as closely to the skin as possible. With a steady motion, pull the tick's body away from the skin. Avoid crushing the tick's body. DO NOT use petroleum jelly, a hot match, nail polish, or other products. Cleanse the area with an antiseptic after removing the tick.

For specific concerns or questions about Lyme disease, call the New Hampshire Department of Health and Human Services, Bureau of Communicable Disease Control at 603-271-4496 or 800-852-3345 x4496.

+Note: All the data in this report are based upon information provided to the New Hampshire Department of Health and Human Services under specific legislative authority. Data are complete as of March 31, 2006. The numbers reported may represent an underestimate of the true absolute number and incidence rate of cases in the state. County is based upon residence at diagnosis and may not reflect location of exposure. Any release of personal identifying information is conditioned upon such information remaining confidential. The unauthorized disclosure of any confidential medical or scientific data is a misdemeanor under New Hampshire law. The Department is not responsible for any duplication or misrepresentation of surveillance data released in this report. Rates are calculated using U.S. Census Bureau population estimates. 2004 census estimates were used to calculate 2005 rates since the U.S. Census Bureau had not yet released 2005 estimates.

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